TC
425
G8.L68
2000
c.1
LIBRARY

Lower Guadalupe River Flood Protection Project

April 17, 2000

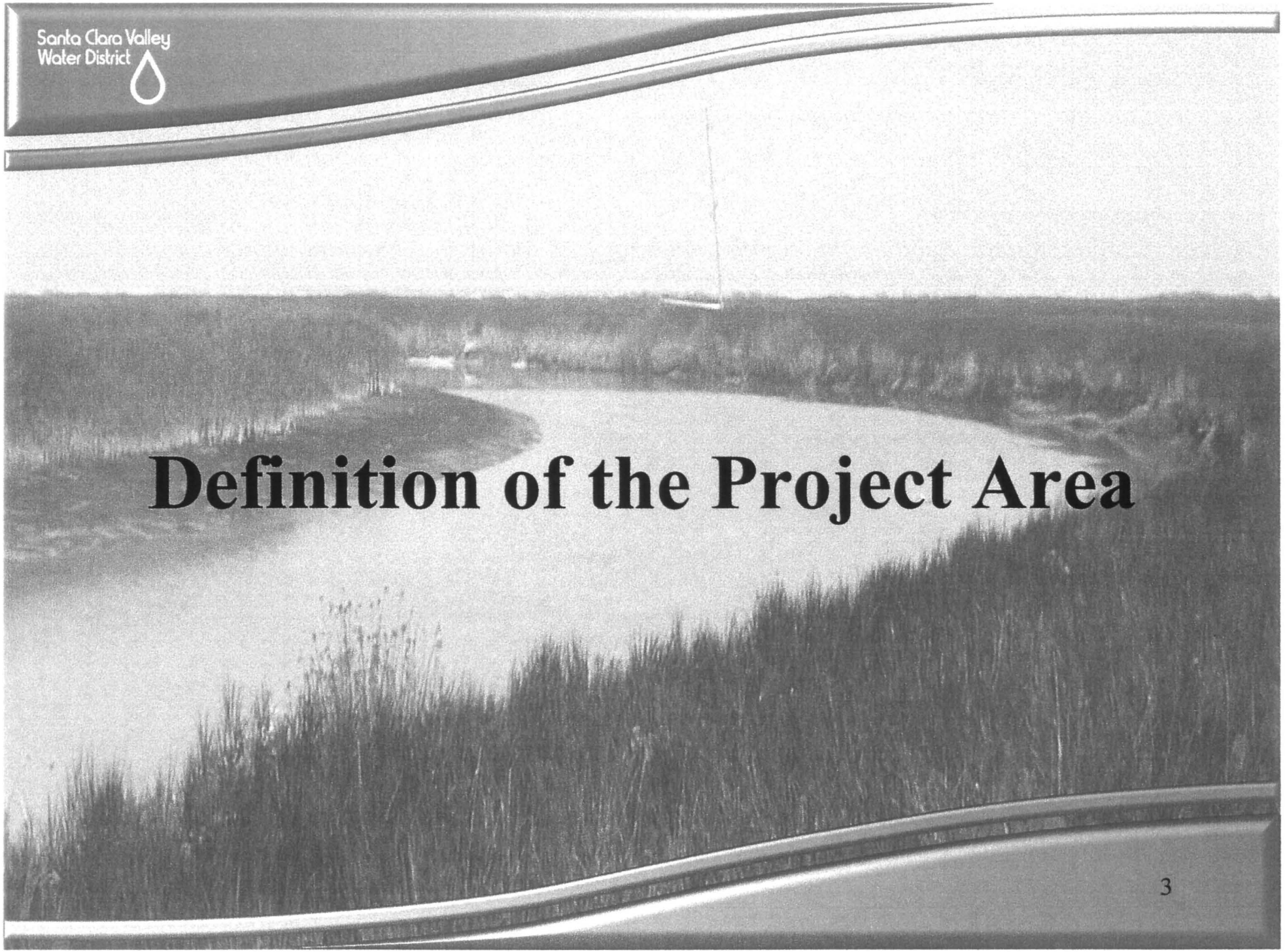
SANTA CLARA VALLEY WATER DISTRICT
LIBRARY
5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118

TC425G8L68 2000 c.1

WMI FMS Presentation Agenda

1) Definition of the Project Area
2) Defining the Problem
3) Project Alternatives
4) Project Constraints

Santa Clara Valley
Water District

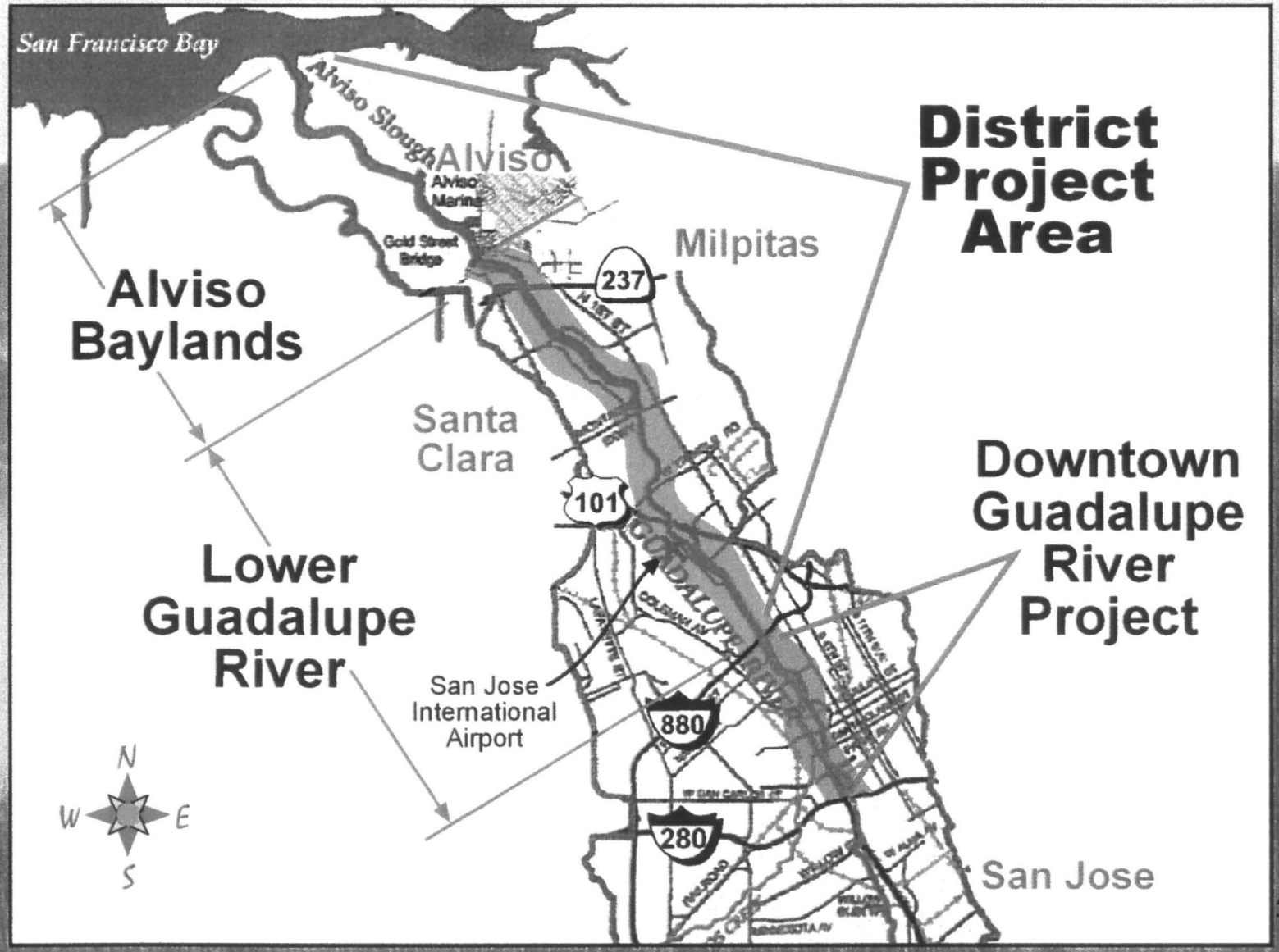


Definition of the Project Area

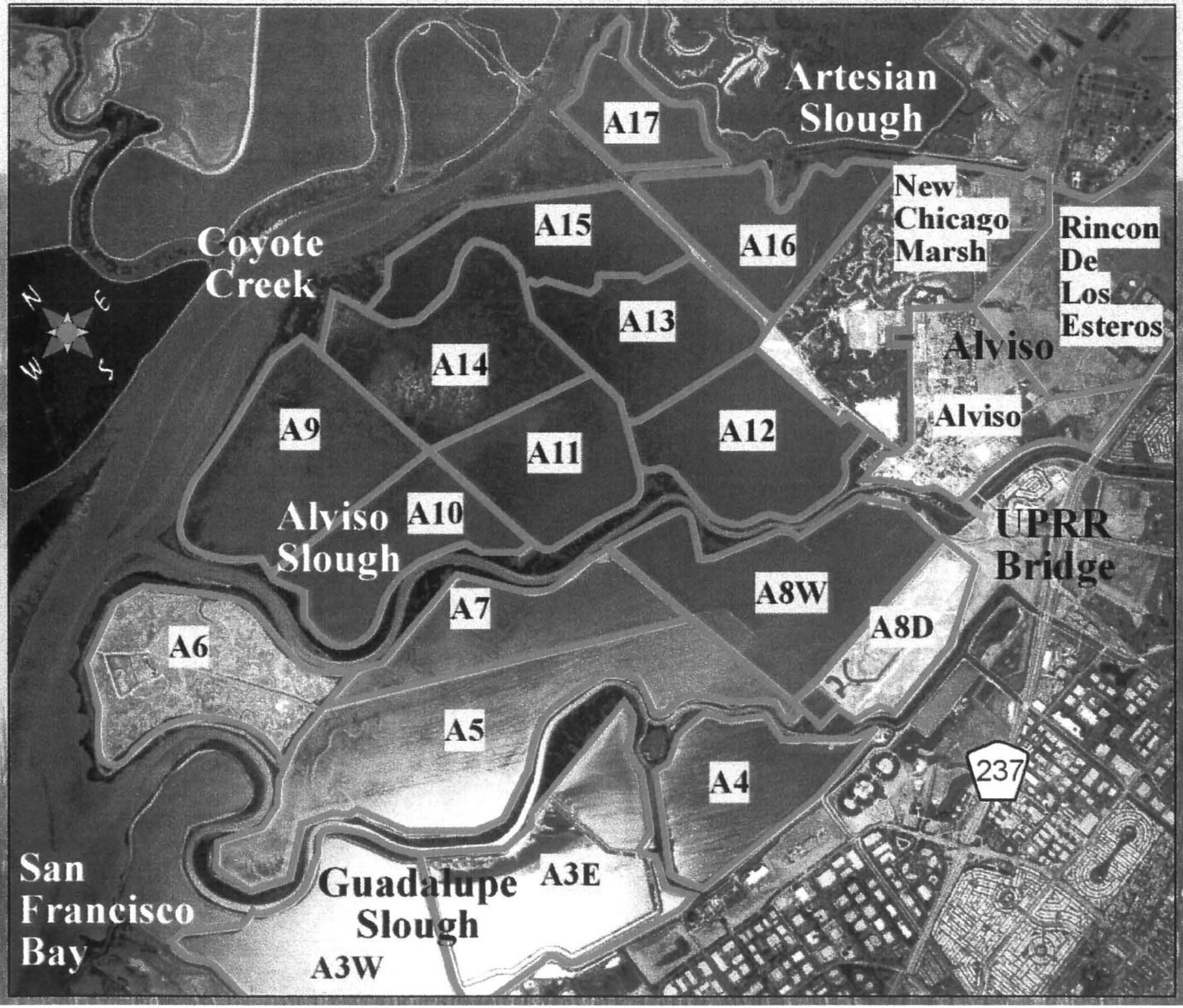
Lower Guadalupe River Watershed

- The water district project area begins at I-880 and extends to the San Francisco Bay
- The lower Guadalupe River reach extends between the San Jose International Airport and the UPRR Bridge in the Baylands
- The Baylands portion of the project addresses the Alviso Slough extending from the UPRR bridge to the San Francisco Bay

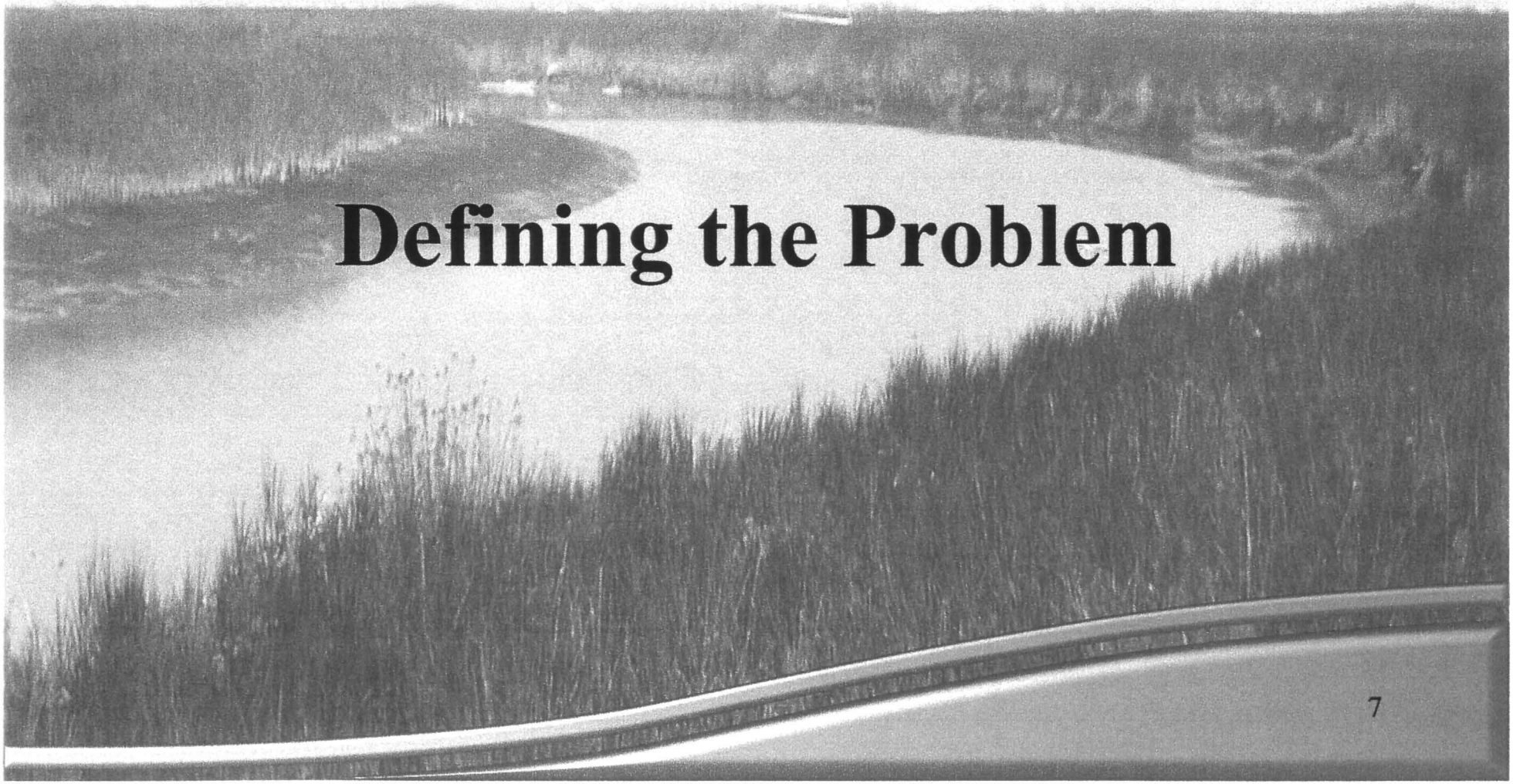
Lower Guadalupe River Project Area



Alviso Baylands



Santa Clara Valley Water District



Defining the Problem

Problem Definition for I-880 to San Francisco Bay

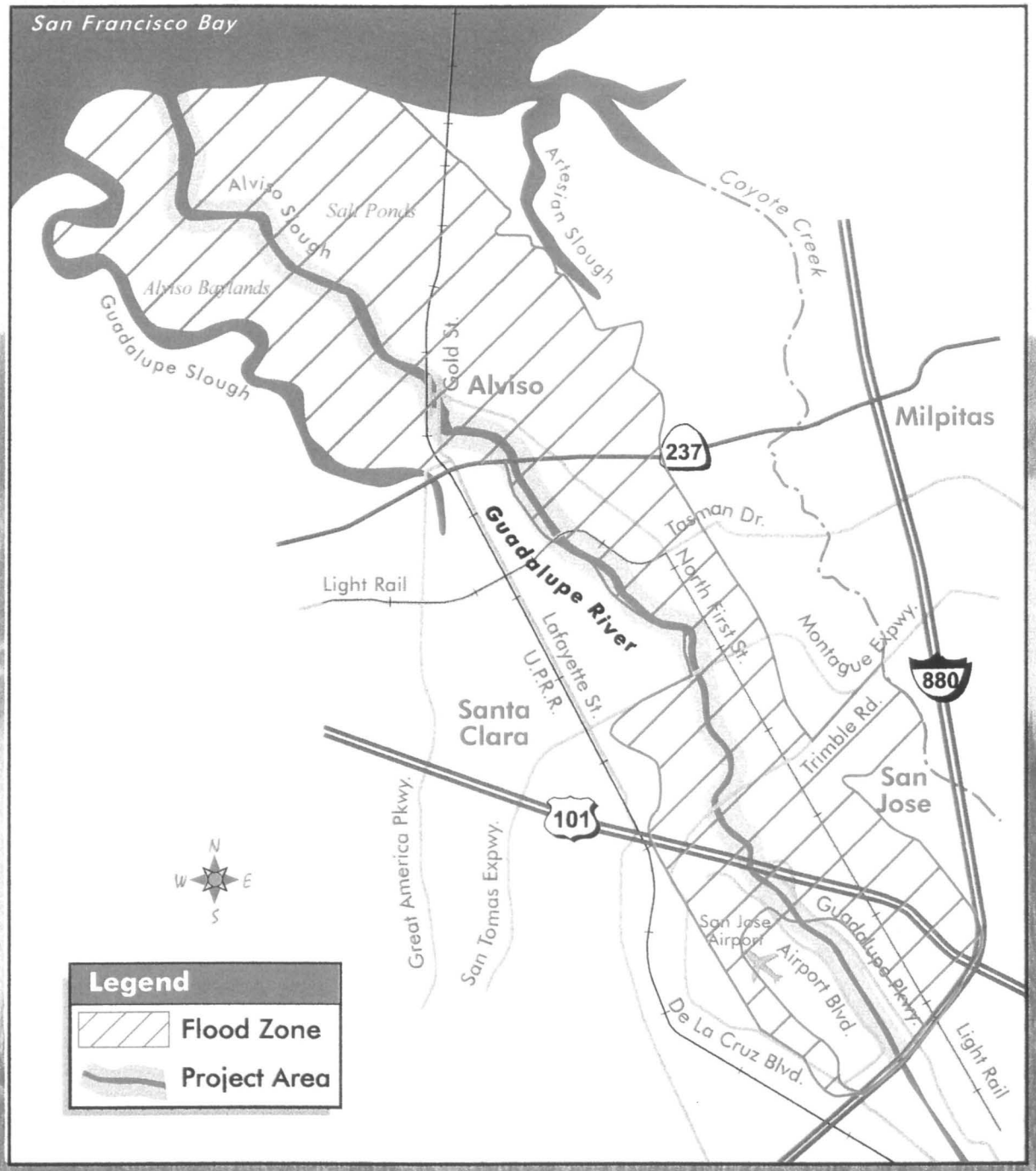
- Present channel can not carry 100-Year flood flows
- Bridges interfere with channel capacity (U/S UPRR)
- Stream channel retains and accumulates sediments
- Vegetation encroachment reduces channel capacity

- Endangered species need protection
- Maintenance costs continue to increase

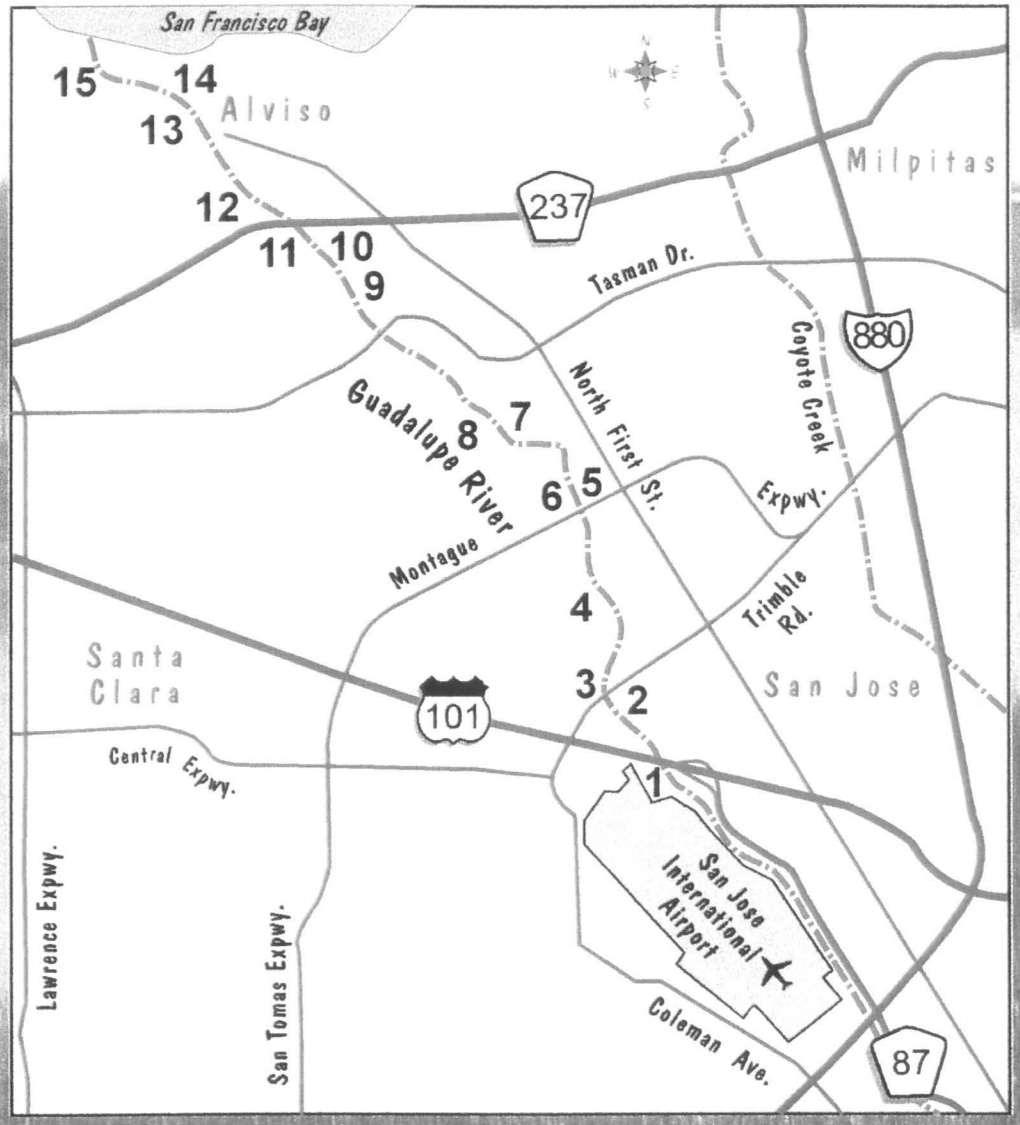
Primary Factors Influencing the Hydraulics within the Project Area

1. Local and storm runoff from municipal pumps
2. Sediment loading and accumulation
3. Tide elevation at flood peak
4. Channel roughness
5. Backflow effects from Coyote Creek and Guadalupe Slough
6. Sea level rise
7. Land subsidence

Current Flooding Problem



Pump Stations



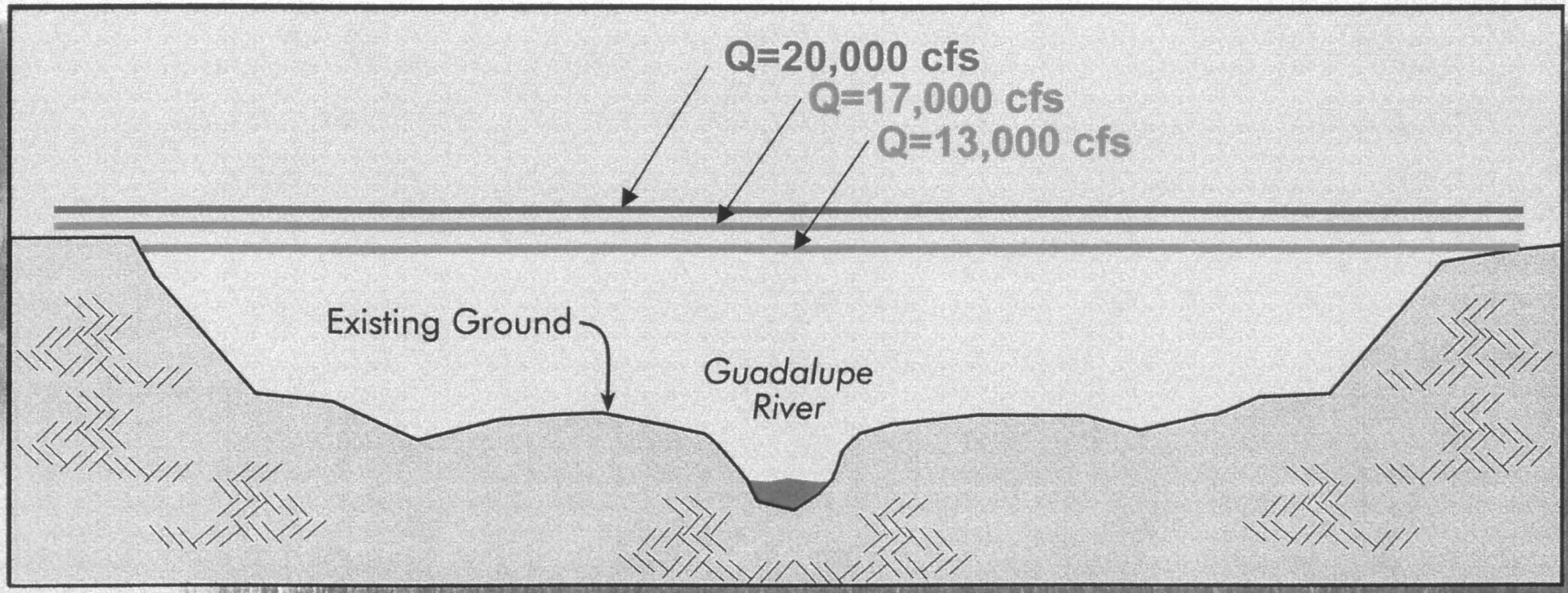
Existing Pump Stations

1 Airport (50 cfs)
2 Gateway (7 cfs)
3 Laurelwood & Victor (131 cfs)
4 Nelo & Victor (60 cfs)
5 Rincon (360 cfs)
6 Lick Mill (234 cfs)
7 River Oaks (67 cfs)
8 Fairway Glen (247 cfs)
9 Oakmead (735 cfs)
10 Oakcrest Estates (12 cfs)
11 East Side (111 cfs)
12 Summerset (21 cfs)
13 Liberty (0.2 cfs)
14 Elizabeth & Gold St. (45 cfs)
15 New Chicago Marsh (1.5 cfs)

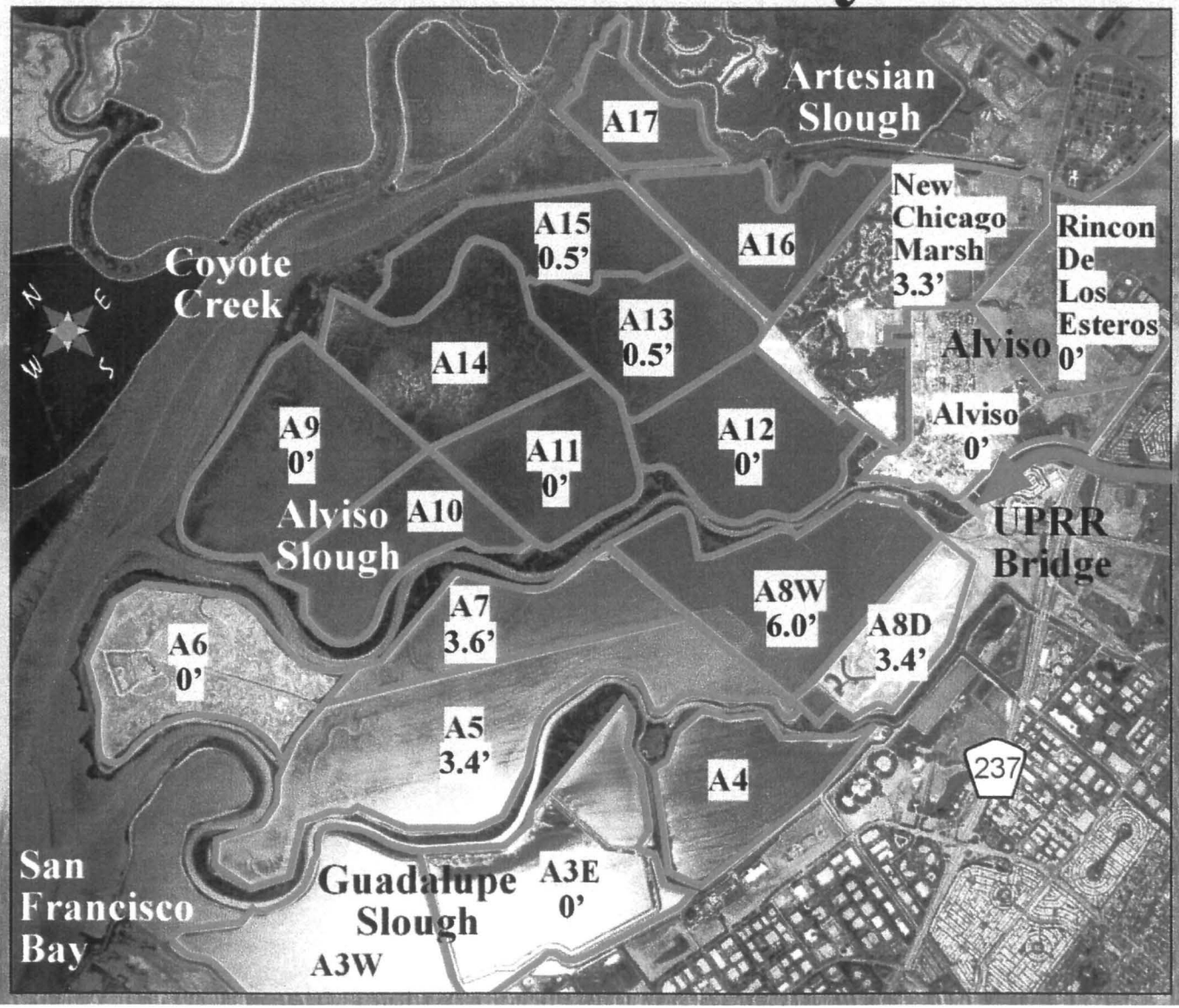
District Would Like to Improve Protection Downstream of U.S. 101

Location	Previous Study (cfs)	Current Study (cfs)
D/S Los Gatos Creek	*17,000*	*17,000*
D/S Hwy. 101	*17,000*	*18,000*
D/S Montague Expwy.	*17,000*	*19,000*
D/S Tasman Dr.	*17,000*	*20,000*

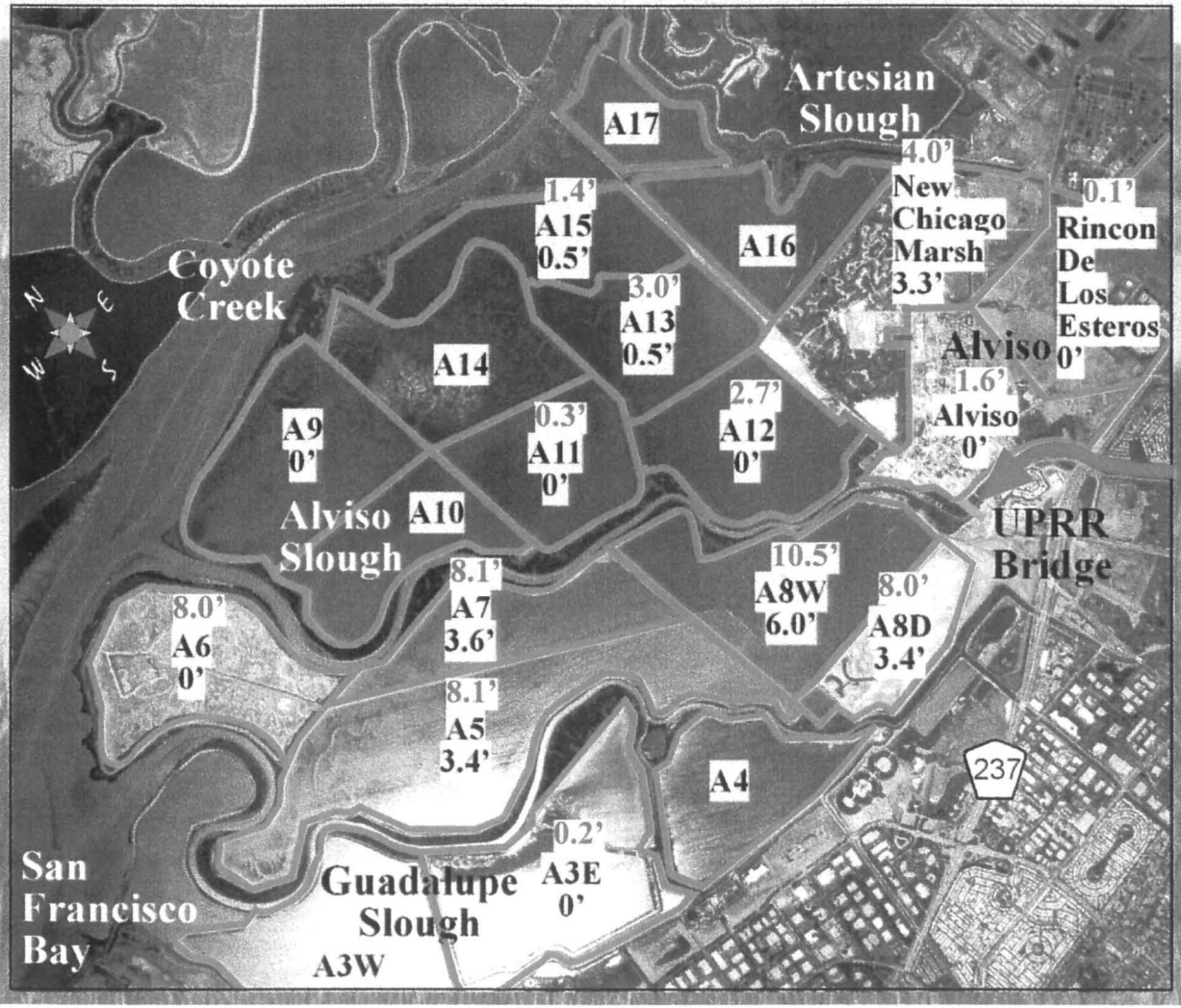
Baseline Design Flow



Existing Flooding Threat to Alviso and Baylands



Flooding at Completion of Guadalupe River Flood Protection Projects



Santa Clara Valley Water District

Project Alternatives

Project Objectives

- **Provide flood protection for homes, businesses, roadways and sensitive Bayland habitat areas**
- **Protect/enhance fish and migratory bird habitat**
- **Minimize long-term maintenance costs**
- **Facilitate public recreation/ open space corridor**

Lower Guadalupe River Project Protection Action Alternatives

I-880 to UPRR

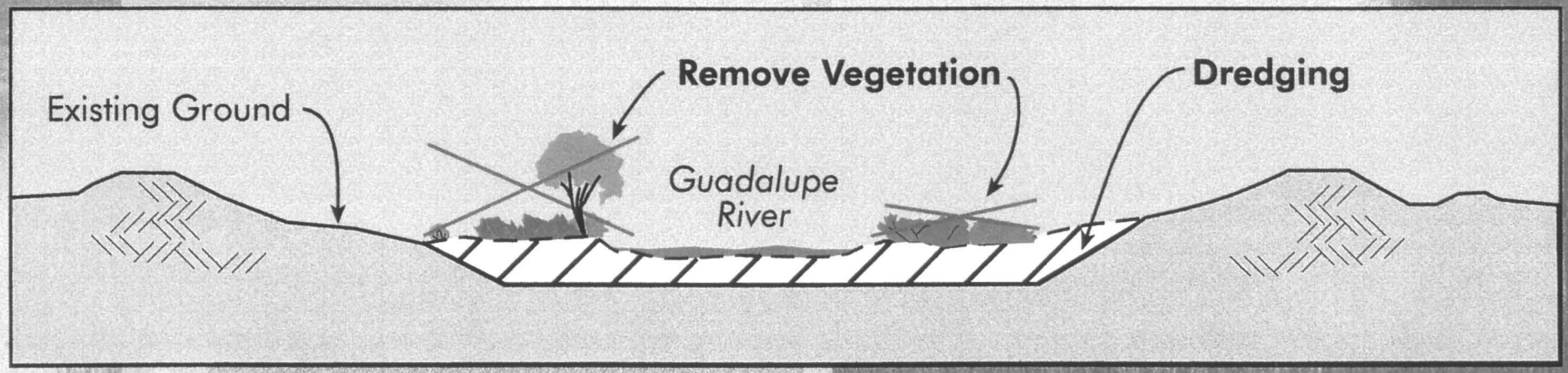
- Dredging
- Floodwall/ Levee Raising
- Bypass Culvert(s)
- Channel Modifications

Baylands

- Dredging
- Levee Construction
- Flood Easements
- Tidal Restoration
- Combination of Options

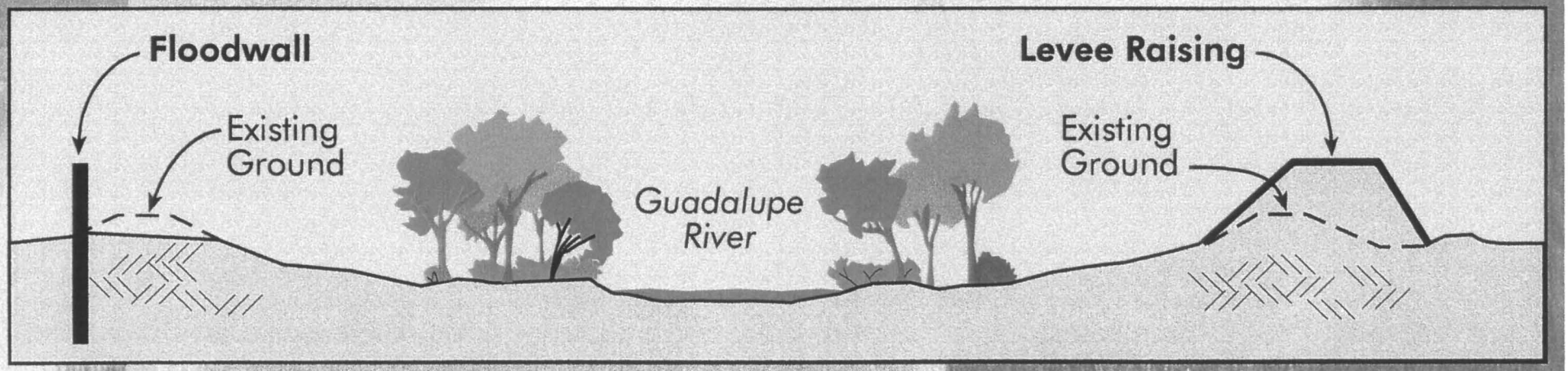
Dredging

- **Montague to UPRR**
- **Extensive wetland mitigation, including land acquisition**



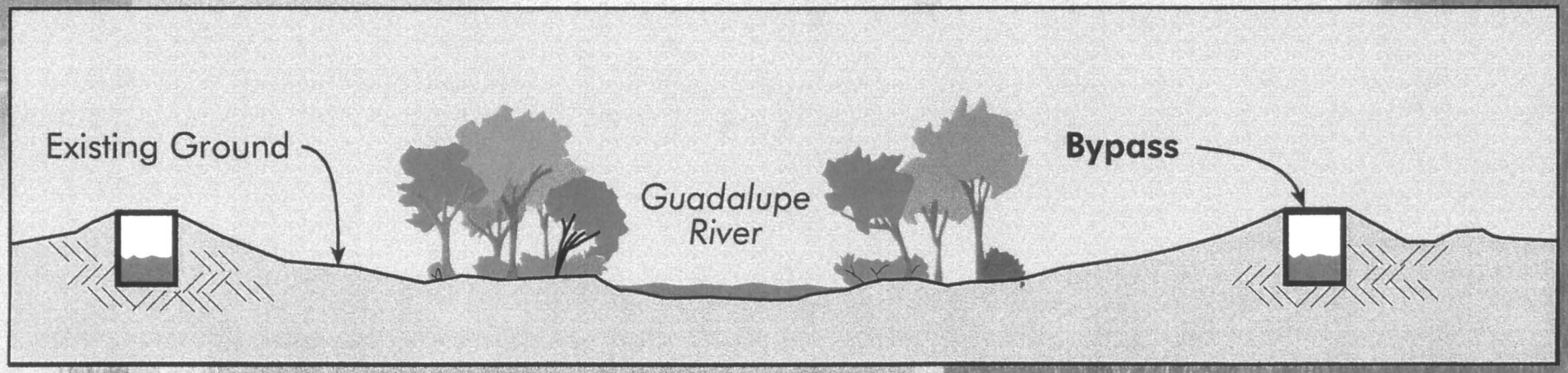
Floodwall /Levee Raising

- 101 to UPRR
- Nominal wetland impact
- Aesthetics



Bypass Culvert(s)

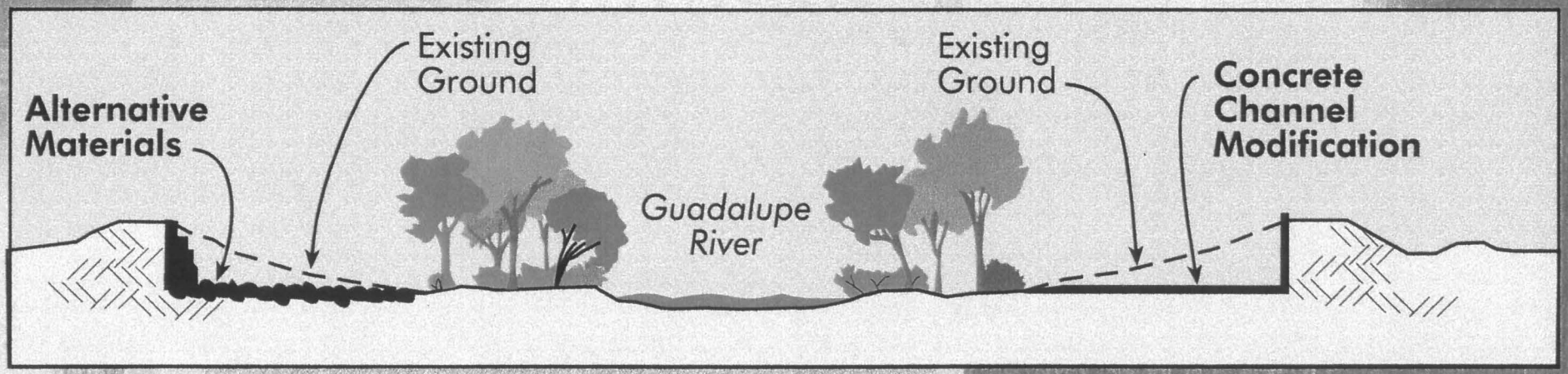
- **101 to UPRR within levee**
- **Nominal wetland impact**



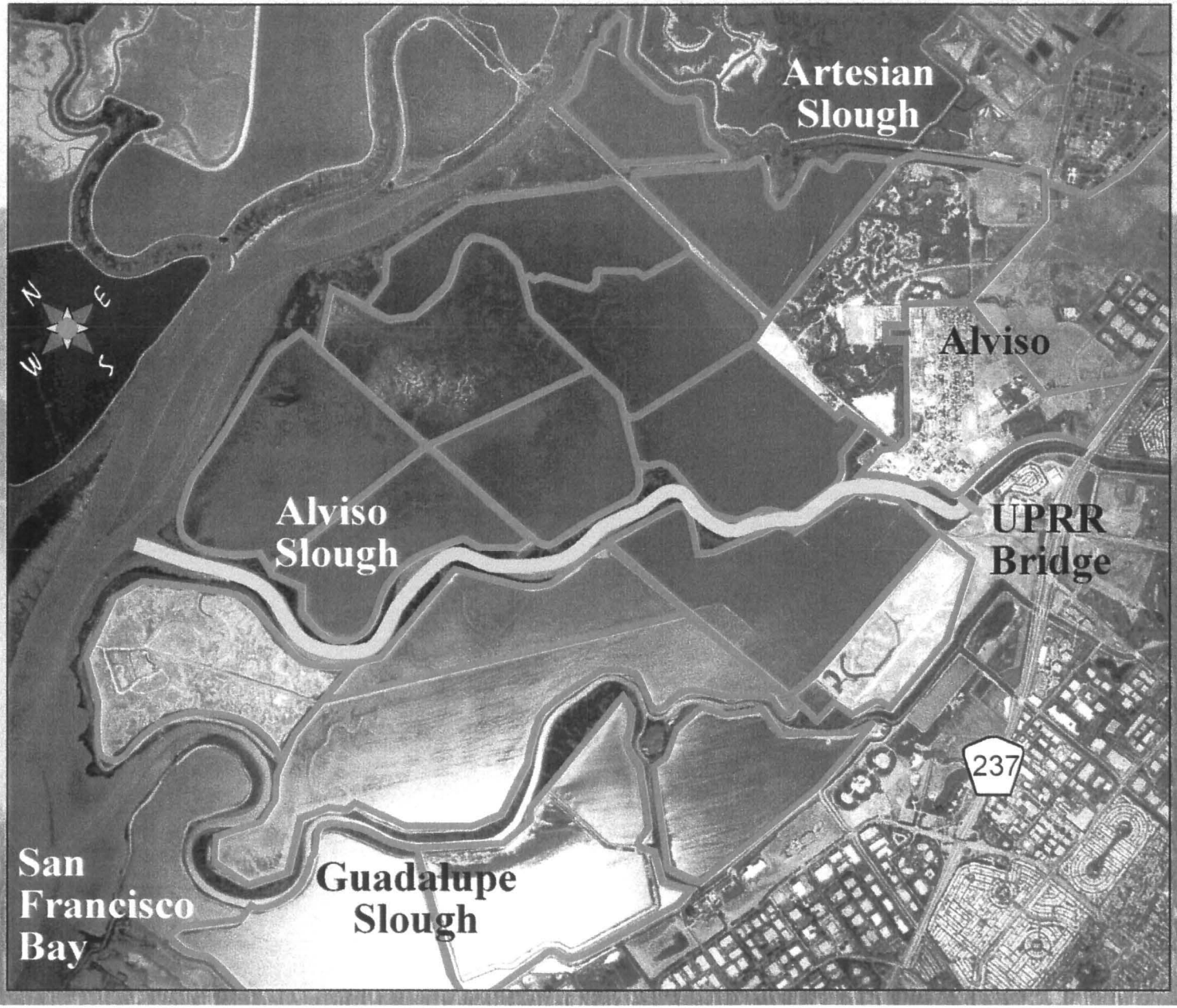
Channel Modification

a) Concrete
b) Alternative materials
c) Combination

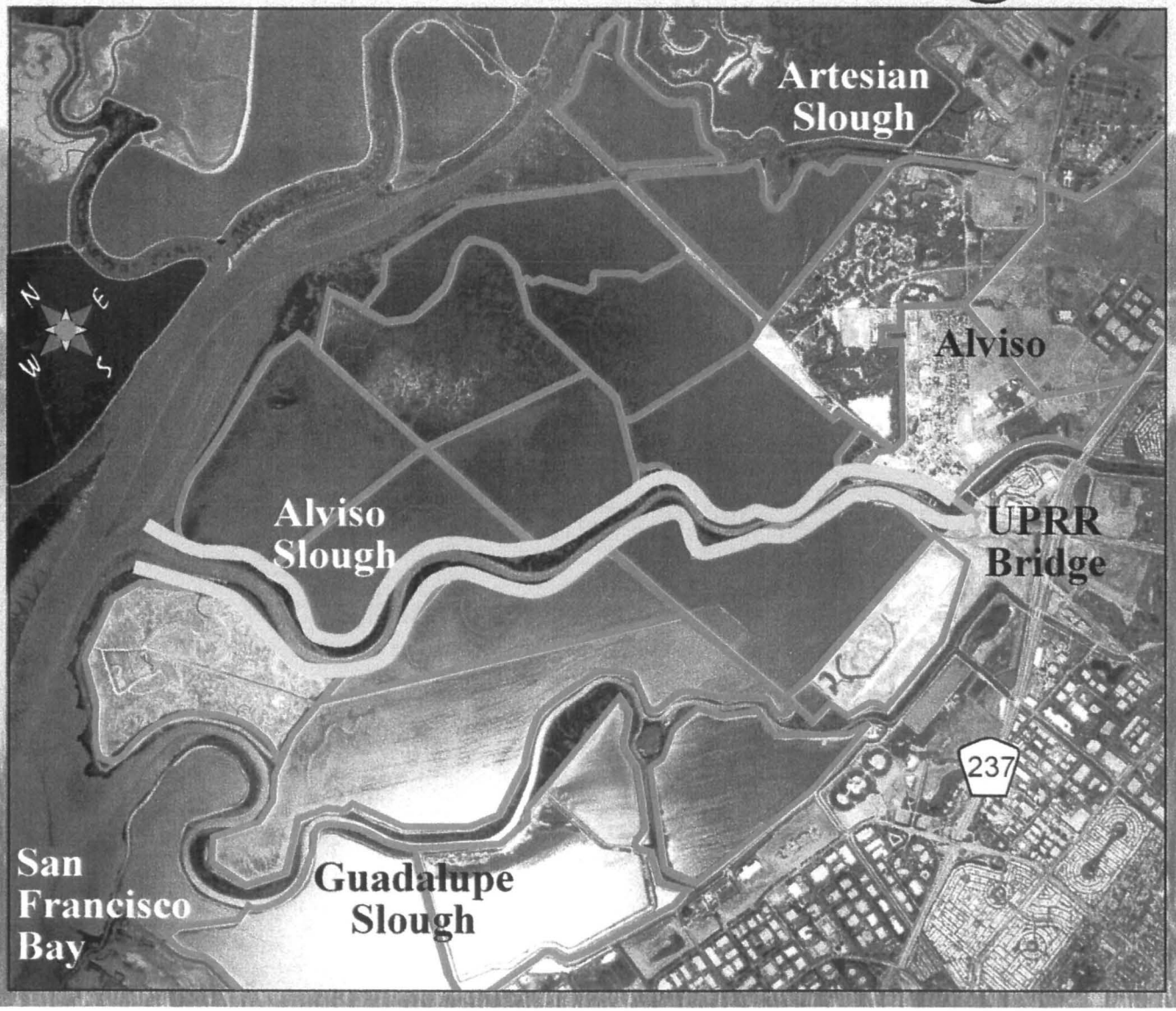
- Montague to UPRR
- Nominal wetland impact
- Some impacts to CDF&G jurisdictional areas



Dredging Alviso Slough

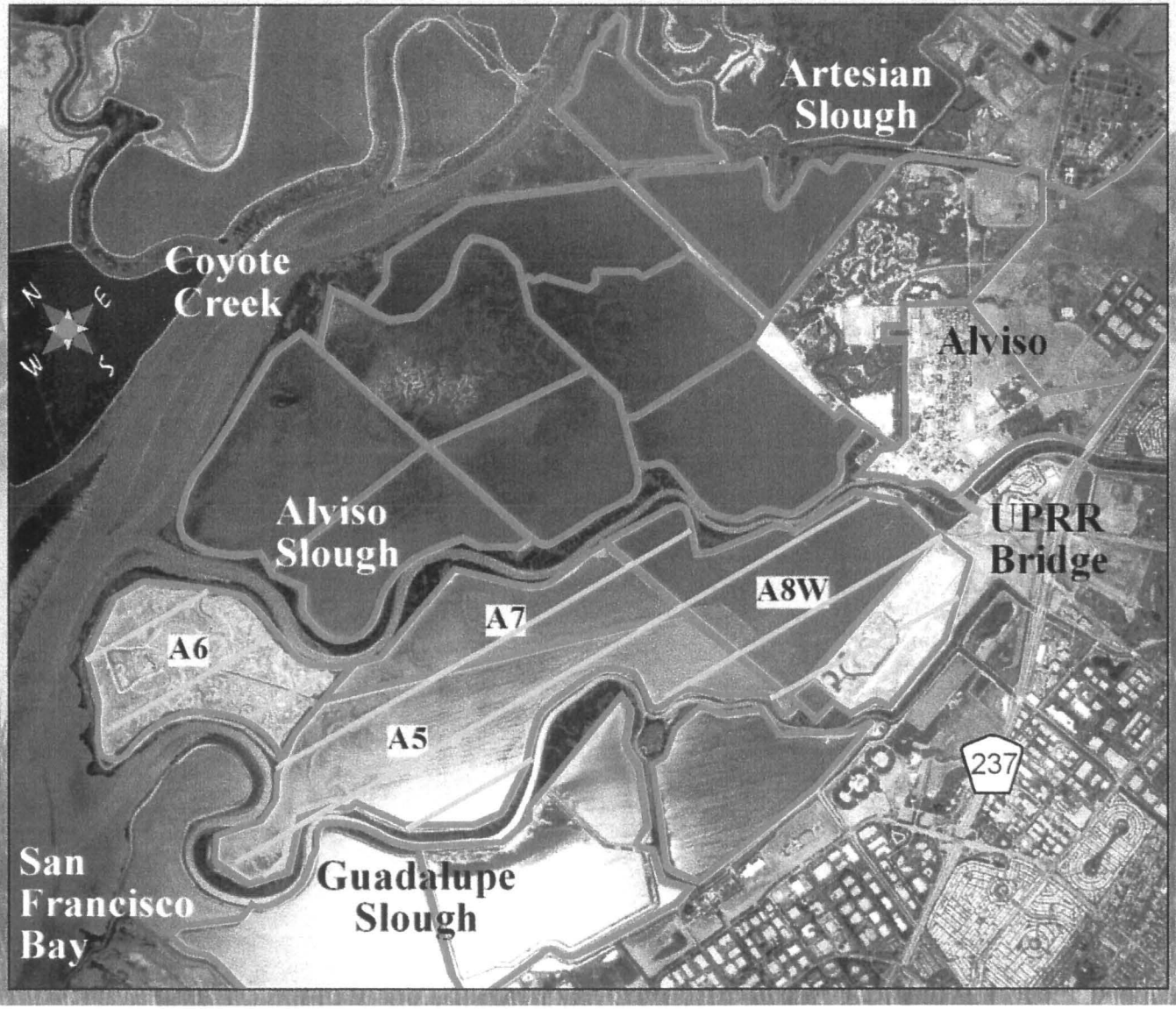


Levee Construction Confining Flows Within Alviso Slough

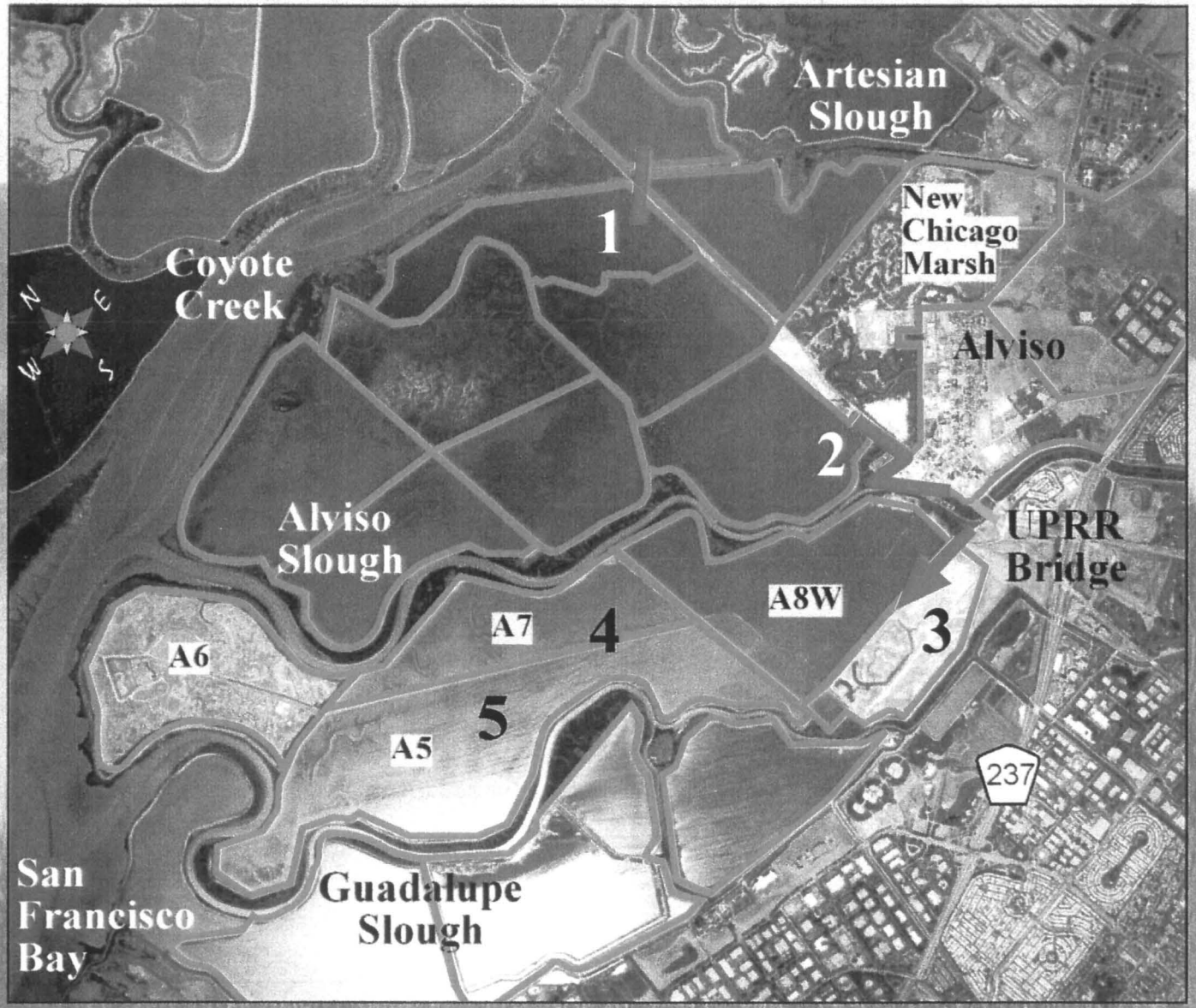


Setback Levee West of Alviso Slough

Acquire Flood Easements on Salt Ponds A5, A6, A7, A8W



Combination of Options



1) New Chicago Marsh Canal Structure
2) Levee Raising/ Floodwall
3) Overflow Weir
4) Flood Easement
5) Tidal Restoration

Numerous Alternatives Determined to be Unimplementable

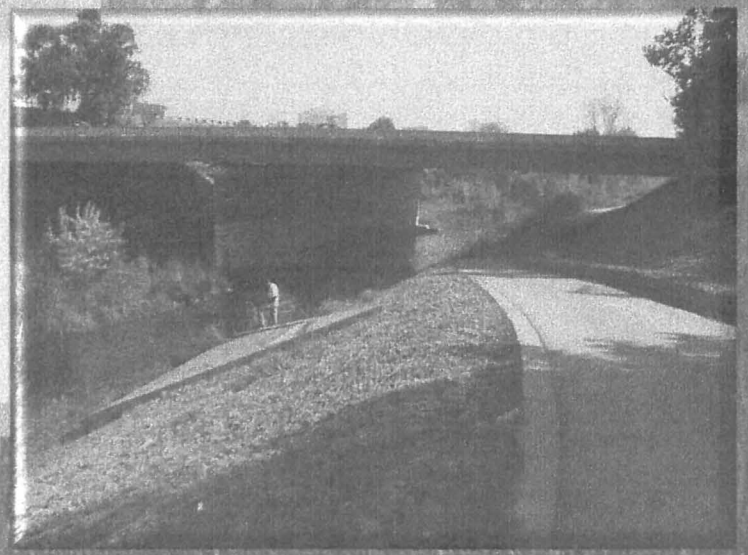
- Raise Levees
- Setback Levees
- Modify Bridge Crossings
- Lower Tailwater Elevation
- Levee Paving
- Watershed Transfer
- Floodwater Storage
- Sediment Management
- Vegetation Management

Santa Clara Valley Water District

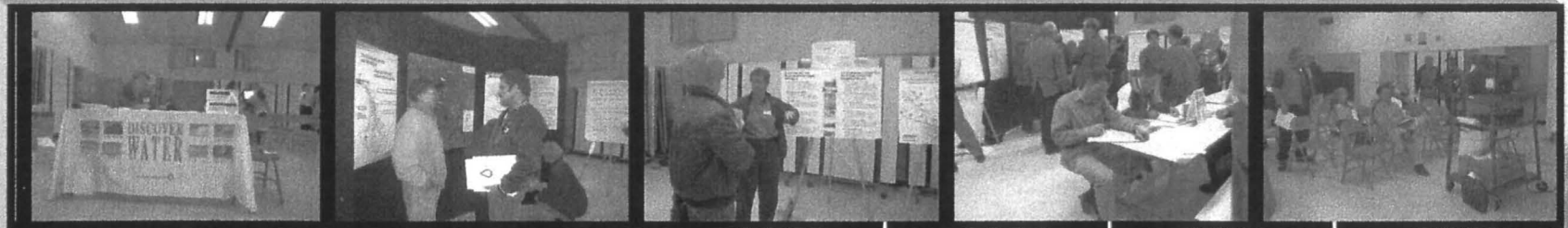
Project Constraints

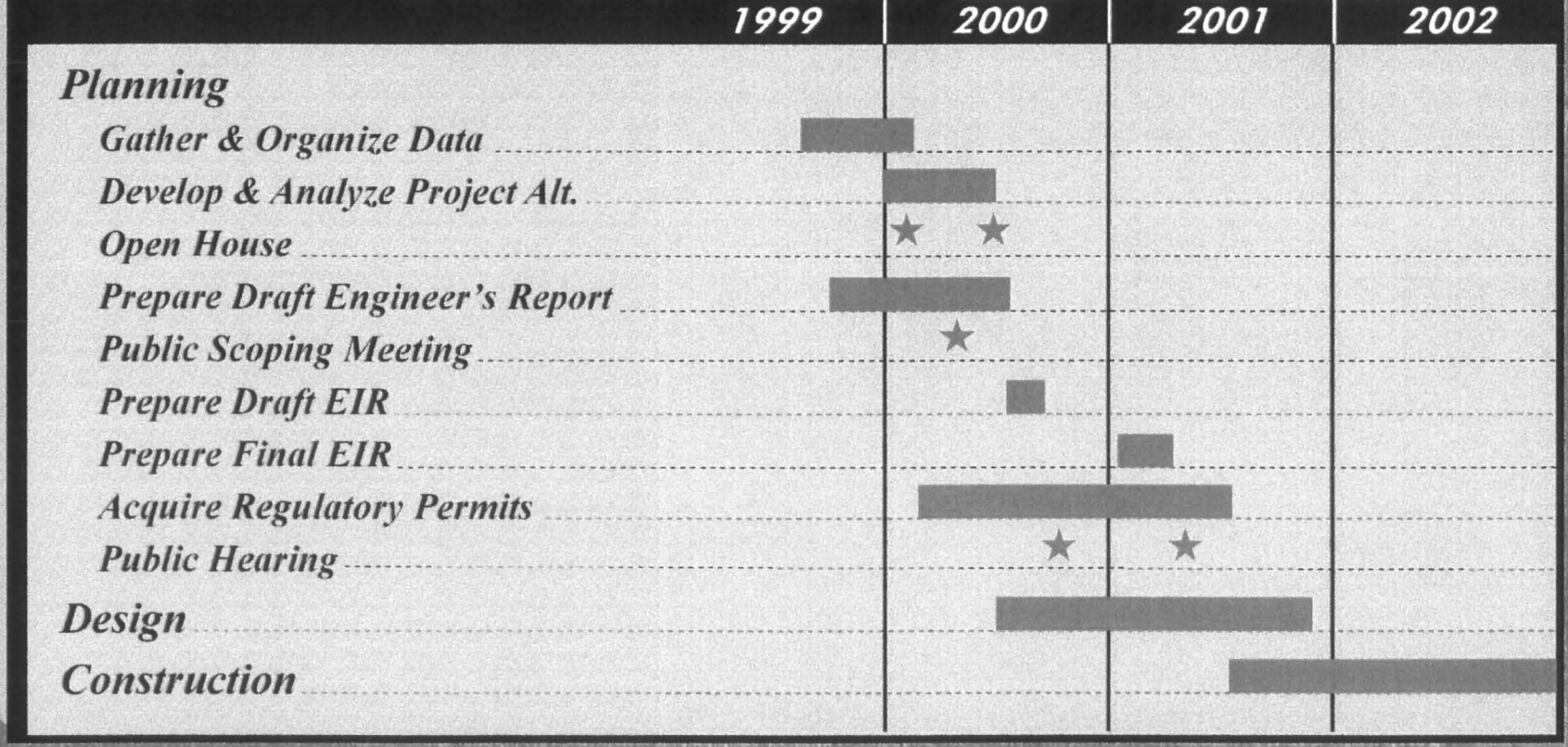
Project Constraints

- Schedule
- Cost
- Environmental compliance
- Physical constraints



Project Schedule

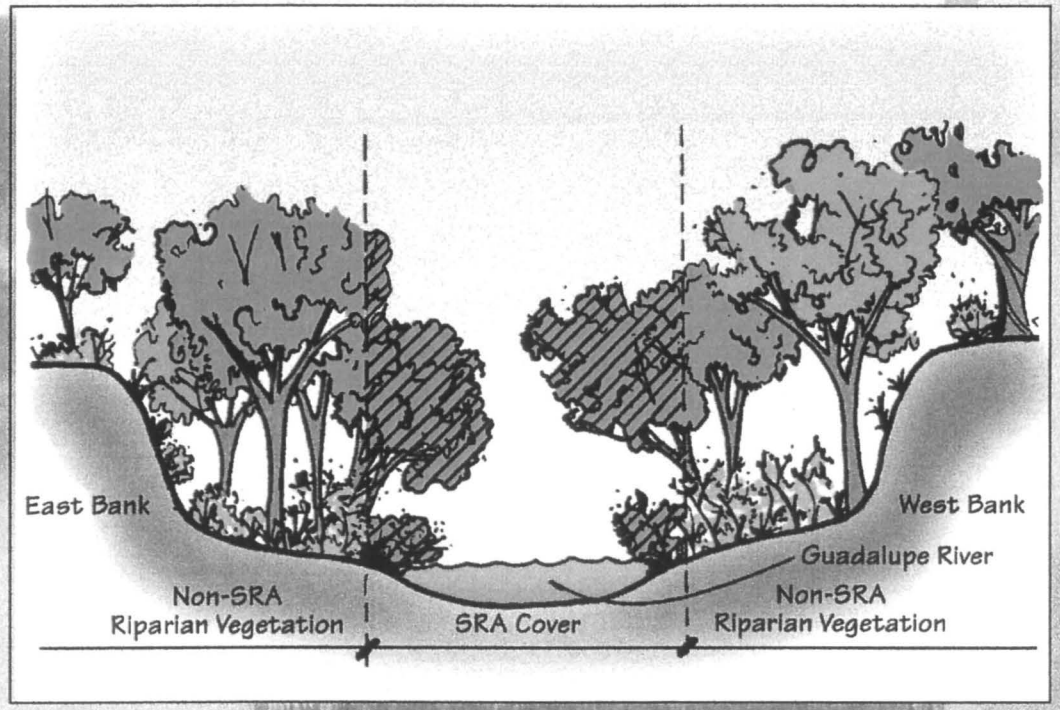




Evaluation Criteria

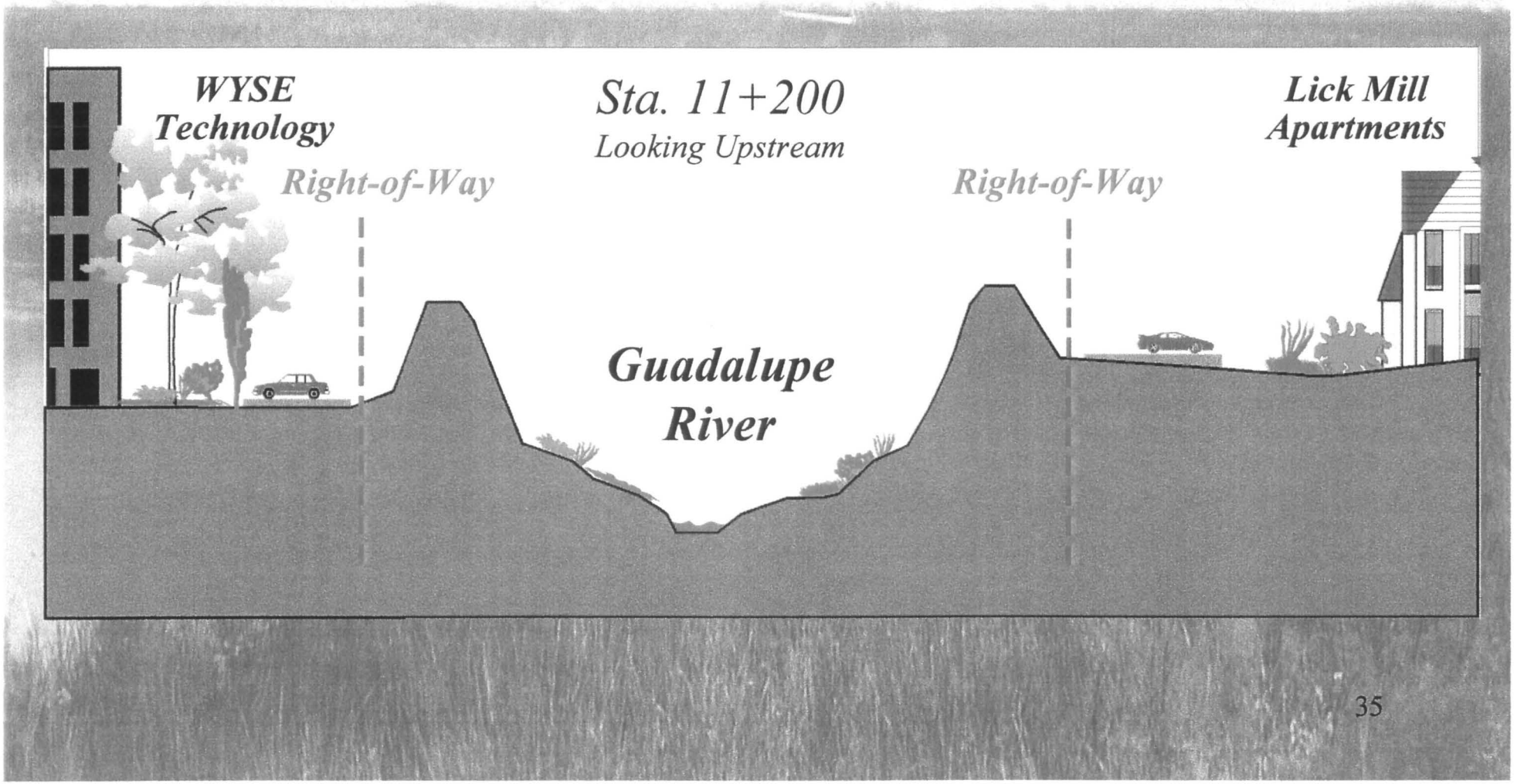
- Project design life
- Hydrology/design flows
- Water surface elevations
- Freeboard
- Public acceptance
- Levee stability/integrity
- Design flow velocities
- Fish passage
- Operations and maintenance
- Right-of-Way
- Capital cost
- Maintenance cost
- Schedule
- Environmental effects
- Compatibility with other facilities and projects

Environmental Considerations



- Marsh and salt water habitat
- Riparian habitat
- SRA
- Temperature control
- Endangered species
- Fish passable structures

Physical Constraints

- Adjacent land use
- Bridges
- Right-of-Way
- Other approved projects
- Utilities, Hetch Hetchy

Right-of-Way Constraints